

Test Procedures

- Prototypes submitted for award must undergo testing to document performance
- Items to be determined:
 - ◆ Test Methods
 - ◆ Self-certification vs. 3rd-Party testing
 - ◆ Test facility

Test Procedures

- Test Methods Required
 - ◆ Energy Use in Standby Mode
 - ◆ Recovery Time/ Time to First Copy
 - ◆ Duplex speed relative to simplex speed

Energy Testing -- Standby Mode

■ Definition of standby mode

- ◆ ENERGY STAR definition of standby is not active, but ready to copy, virtually no delay before making copies
- ◆ Working group uses the same understanding of standby mode
- ◆ Standby should not be a feature that can be disabled

Energy Testing -- Standby Mode

■ Test options:

- ◆ Use existing energy test (e.g., ASTM F757-94)
 - Entrant would submit **all** line item results, or
 - Entrant would submit **only** standby and recovery time related line items
- ◆ Identify other appropriate, existing test method
- ◆ Develop simple test to measure only standby energy consumption (e.g., for one hour)

ASTM Example

Test Results

Plug-in energy _____

Warm-up plus standby
energy _____

Standby energy _____

Energy-saver energy _____

Copying energy plus standby

Energy-saver delay time _____

Warm-up energy _____

Copying energy _____

Recovery energy _____

Copying energy per copy _____

Energy-saver time per hour _____

Fraction energy-saver time _____

etc.

Definition -- Recovery Time

- Recovery time can be considered:
 - ◆ Time until fuser is ready (warm enough) to produce an image, or
 - ◆ Time until first copy is produced (requires defined copy job)
- Definition requires
 - ◆ Specified starting point
 - ◆ Clear judgment of ready or copy state

Test Method -- Recovery Time

■ Options:

- ◆ Use ASTM energy test, energy-saver delay time measurement
 - Period covers time from energy-saver mode to standby mode
 - Would require adaptation
- ◆ Develop simple recovery time test procedure
 - Measure time from any triggering mechanism (placing document, touching keys) to ready state/temperature
- ◆ Measure time to first copy from standby mode

Test Method -- Duplex Speed

- Duplex speed test options:
 - ◆ Use ASTM *Standard Test Method for Determination of Productivity Using Electrostatic Copy Machines* (ASTM F 1318-90)
 - Ten originals are copied in 1:1, 1:2, 2:2 in sets of 1, 3, 5, 10, and 20
 - Test is repeated until acceptable level of accuracy is obtained
 - Time is measured from pressing “copy/start” to completion of job -- ready state

Test Method -- Duplex Speed

■ Options (cont'd)

- ◆ Use only a subset of the ASTM test (e.g., 10 sets at 1:1 and 1:2)
- ◆ Develop a simple speed test using the number of copies appropriate for copier speed (e.g., job size based on ASTM energy test)

Test Facilities

■ Self-certification

- ◆ All entrants would use the same test methods
- ◆ Test results would be documented, provided to jury

■ Third-party testing

- ◆ Provides objective documentation
- ◆ Test facility would have requisite equipment and experience
- ◆ Requires payment of test facility

Test Facilities

- Third-party test facilities
 - ◆ Question of whether there are qualified test facilities in each manufacturer's country
 - ◆ Procurement working group may pre-select accepted independent test facilities